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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/053,555	01/24/2002	Tadao Ookawa	Q68175	3320

7590 07/30/2003

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EXAMINER

DINH, TUAN T

ART UNIT PAPER NUMBER

2827

DATE MAILED: 07/30/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/053,555

Applicant(s)

OOKAWA ET AL.

Examiner

Tuan T Dinh

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 December 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 and 9-13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5 and 9-13 is/are rejected.
- 7) ☒ Claim(s) 6 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 January 2002 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☒ The proposed drawing correction filed on 30 December 2002 is: a) ☒ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

DETAILED ACTION

Drawings

1. The drawings are objected to under 37 CFR 1.83(a) because they fail to show “the metal layer formed on both side of the flexible wiring circuit board (claim 13) in figure 1” and “...a metal layer disposed on the suspension board in claim 10” as described in the specification. Any structural detail that is essential for a proper understanding of the disclosed invention should be shown in the drawing. MPEP § 608.02(d). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 10 and 13 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 10, lines 2-5, it is confuse. The phrase of “the metal layer...substantially equal” is not understood. Applicant recites in claim 9 that the different of impedance between the flexible circuit board and the suspension board, which are +/- 10 tolerances. How they could be substantially equal?

What does applicant mean of "the metal layer disposed on the flexible circuit board in a same manner as a metal layer disposed on the suspension board?"

Regarding claim 13, line 2, it is confuse. How one metal layer being formed on both side of the flexible circuit board?

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-5, 7, 9-10, and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Prior Art (figure 12, submitted by applicant, hereafter PA) in view of Kuramochi et al. (U. S. Patent 6,252,176).

As best understood to claims 1-3, 7, and 13, PA discloses a junction flexible wiring circuit board (4) as shown in figure 12 used for performing junction between suspension board (2) for mounting a magnetic head (1) thereon and a control circuit board (3) for operating the magnetic head comprising terminal portions (14, 15) connected to the suspension board. The flexible wiring circuit board (4) further comprising a plurality of wiring circuit patterns (12) and a width of each of said patterns (12) is not projected out.

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The flexible wiring circuit board (4) does not disclose a metal layer formed on a front surface and substantially uniformly in the lengthwise direction except portions where the terminal portions are provide.

Kuramochi shows a flexible wiring circuit board (7, column 3, lines 15-16-see figures 1A-1C) comprising: a metal layer (3, column 2, line 66) formed on a front surface (of an Insulating base layer 6) and substantially uniformly in the lengthwise direction except portions where terminal portions (4) are provided (see figure 1).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have teaching's Kuramochi to employ the flexible wiring circuit board of PA in order to provide a different of characteristic of impedance of electrical connections between the flexible circuit board, the suspension board, and the control board.

As to claim 4, Kuramochi discloses the flexible wiring board (7) as shown in figure 1 wherein

a width of said metal layer is formed to be not smaller than a sum of a total width of said wiring circuit patterns and a total width of intervals between said wiring circuit patterns; and

a width of each of said wiring circuit patterns is not projected out from the width of said metal layer.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have teaching's Kuramochi in claim 4 to employ the flexible

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wiring circuit board of PA in order to provide a sufficient cover and protect for the flexible circuit board.

As to claim 5, PA discloses the flexible wiring board (4) as shown in figure 12 wherein each of said wiring circuit patterns (12) is provided with at least one of write line and at least one of read line. PA does not disclose the metal layer including read and write line side metal layers portion opposite to all of said write and read lines.

Kuramochi shows a plurality of signal layers (222) disclosed in figures 5-8 capable of being read and write line metal layers opposing to conducting layers (212) of the flexible wiring board.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have teaching's Kuramochi in claim 5 to employ the flexible wiring circuit board of PA in order to provide transmission lines of the flexible circuit board.

As to claims 9-10, PA discloses the flexible wiring board (4) in figure 12 provide in combination with a suspension board (2) and a control board (3).

PA does not disclose a metal layer formed on a front surface of the flexible circuit board.

Kuramochi shows a flexible wiring circuit board (7, column 3, lines 15-16-see figures 1A-1C) comprising: a metal layer (3, column 2, line 66) formed on a front surface of the flexible wiring circuit board (7).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have a metal layer formed on a surface of the flexible circuit

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board as taught by Kuramochi to employ the flexible wiring circuit board of PA in order to provide a different of characteristic of impedance of electrical connections between the flexible circuit board, the suspension board, and the control board.

PA and Kuramochi do not show the different of impedance between the flexible circuit board, the suspension board, and the control board within ± 10 in tolerances.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have a metal layer disposed on a surface of the flexible circuit board as taught by PA and Kuramochi for purpose of increasing the thickness of the multiplayer flexible circuit board that means increasing/decreasing the impedance values of the flexible circuit board.

6. Claims 11-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over PA (figure 12) in view of Kuramochi ('176), and further in view of Kishimoto et al. (U. S. Patent 6,524,892).

PA and Kuramochi do not teach the metal layer having thickness in a range from 500 angstroms to 30 microns. Kishimoto teaches a flexible circuit board (10) having a metal layer (20), the metal layer has a thickness in a range from 500 angstroms to 30 microns (see column 5, lines 49-55).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have teaching's Kishimoto to employ the flexible wiring circuit board of PA and Kuramochi in order to improve the impedance of the flexible circuit board.

Allowable Subject Matter

7. Claim 6 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Rinne et al. disclose related art.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tuan T Dinh whose telephone number is 703-306-5856. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David L. Talbott can be reached on 703-305-9883. The fax phone numbers for the organization where this application or proceeding is assigned are 703-305-1341 for regular communications and 703-305-1341 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

TD
July 24, 2003.

John B. Vigustin
John B. Vigustin
EXAMINER
AU 2827